

## SHORTER NOTES

MUTATIONS AND FORMS. — For nomenclatural purposes, I have found occasion to divide variations (not subspecies) into two groups, designated mutations and forms. There is nothing new in this idea, but as it has not always been understood, some explanation may be desirable.

*Mutations* are variations in kind, probably always congenital, and frequently (at least) atavistic.

Examples are :

✓ *Viorna Douglasii* (Hook.) \* mut. *rosea* (*Clematis Douglasii rosea* Ckll. West Amer. Scientist, 5: 5. 1888), in which the flowers are pink instead of blue.

*Sambucus microbotrys* Rydb. mut. *xanthocarpa* and mut. *oinocarpa* (*S. racemosa xanthocarpa* and *oinocarpa* Ckll. Bull. Torrey Club, 18: 170. 1891), in which the fruit is of colors different from that ordinarily found.

*Lilium montanum* Nels. mut. *pulchrum* (*L. Philadelphicum pulchrum*, Aldrich, Science Gossip, Au 1889), in which the usual spots on the flowers are absent.

*Forms* are variations in degree, frequently induced by external conditions, and not usually atavistic. Examples are found in the polymorphic species of *Batrachium*, the *Polygonum*-group, etc.

Mutations, as here understood, are not adaptive, unless accidentally. Forms usually are adaptive. Just how far the characters of any given form are congenital cannot easily be ascertained; in one sense they always are, that is to say, the plant has the inherited power of responding in a given way to certain stimuli, if it does not inherit what may be termed obligatory characters.

*Subspecies* differ from the above in that they occupy different environments (geographically or ecologically) and only connect with the species in certain places, and then by intermediates. The existence of numerous subspecies as here defined (*c. g.*, in mammals) seems to constitute a strong argument against the mutation theory of species. On the other hand, polymorphism shows how characters which in themselves are good enough to base species (or even genera) upon may arise within specific limits,

\* *Viorna Douglasii* = *Clematis Douglasii* Hook. Fl. Bor.-Am. 1: 1. pl. 1. 1830.

and if one phase should finally separate from the other (*e. g.*, by the disappearance of one phase in one locality, and of the other in another, or by some Mendelian process), species would arise without any subspecies, as defined above, being developed. Changes in the colors of flowers might become specific in this way (*cf.* the white-flowered *Cleome*, forming a race in Arizona), and albinism in snails, which certainly begins as a mutation, has in some instances become a valid specific character.

*Race* might be used to designate local varieties originating as last indicated, and not connected by intermediates.

*Variety* is a general term to use only when the classification of the plant or animal under one of the above categories cannot be determined.

T. D. A. COCKERELL.

A NEW HYDNUM.—**Hydnum Earleanum.** Resupinate: subiculum closely adnate, scarcely separable, broadly effused, thin, 1–2 mm. thick, golden yellow: spines 3–6 mm. long, crowded, awl-shaped, slender, golden yellow: spores subglobose, colorless, smooth, about  $4 \times 3\mu$ . Growing on under side of decorticated log (*Ostrya Virginiana?*).

The beautiful golden yellow color will easily distinguish this plant. A small tree about six inches in diameter had been cut down but not entirely severed from the stump. The bark had been stripped off and on this smooth surface the *Hydnum* was growing. It covered a space two feet long and three inches wide. It could easily be seen at a distance of 75 feet. I have never seen any other fungus with such a beautiful yellow color. This color however disappears in drying, fading to a pale flesh-brown.

Type locality: Mud Lick Hollow, Armstrong County, Pa.

Type specimen in writer's collection, Carnegie Museum, Pittsburgh, Pa.

This plant has been named in honor of Professor F. S. Earle of the New York Botanical Garden.

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